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ABSTRACT

A survey of the 1974, 1975, and 1976 graduates of the Annandale campus of Northern Virginia Community College was conducted to test the hypothesis that graduates who participated in the cooperative education program were more likely to have experienced career development than those graduates who did not participate. An equal number of graduates in each group were asked to fill out a survey instrument designed to measure seven career development criteria. Findings for each criterion, although not statistically significant, indicate that: (1) 63% of co-op graduates found a full-time job in less than one month after graduation, while 37% of the non-co-op graduates did: (2) 61% of co-op graduates held jobs closely related to their academic major, while only 39% of the non-co-op graduates did: (3) 57.4% of the co-op graduates were satisfied with their jobs, while 42.6% of the non-co-op graduates were satisfied: (4) 33.9% of the co-op graduates earned initially over $10,000 annually, while 26.8% of the non-co-op graduates earned the same amount: (5) 54.1% of the co-op graduates received pay increases in the $2,501 to $5,000 range while only 45.9% of the non-co-op graduates did: (6) both groups earned approximately the same number of promotions: and (7) the co-op graduates achieved these promotions faster. The survey report includes a review of relevant literature and the questionnaire. (JP)

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NORTHERN VIRGINIA COMMUNITY COLLEGE

A GRADUATE EVALUATION OF THE COOPERATIVE EDUCATION PROGRAM, ANNANDALE CAMPUS

AND

A COMPARATIVE ASSESSMENT OF TWO-YEAR COOPERATIVE EDUCATION AND NON-COOPERATIVE EDUCATION GRADUATES' CAREER DEVELOPMENT FOR THE YEARS 1974, 1975 AND 1976

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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FINAL REPORT

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TABLE OF CONTENTS

INTRODUCTION 1

I. Context and Statement of the Problem 1

II. Literature Review 3

III. Hypothesis 7

IV. Definition of Terms and Variables 7

METHOD 10

I. Subjects 10

II. Design 11

III. Analyses 12

IV. Limitations 13

ANALYSIS OF RESULTS 16

I. Findings 16

II. Conclusions 23

Table I

Comparative Statistics of Cooperative Graduates in 7 Indicator Areas of Career Development 28

APPENDIX A

Charts I through IX 29

APPENDIX B

Letter to Graduates 34

APPENDIX C

Questionnaire 35

FOOTNOTES 43

BIBLIOGRAPHY 45

INTRODUCTION

I. Context and Statement of the Problem

Since the inception of the Cooperative Education concept by Dr. Herman Schneider at the University of Cincinnati in 1906, scholarly research has identified many benefits that accrue to participating students, employers, cooperative institutions and society in general. Indeed, as students, faculty and administrators in two-year institutions offer proposals designed to make their educational programs more relevant, cooperative education has been advanced as one of the most effective ways to ". . . involve students in activities beyond the cloistered campus walls."[1]

This strong statement, however, has too often been accepted on its face by those same students, employers, and institutions on the basis of the many positive personal experiences that they might have had while working to implement a cooperative education program. Unfortunately, these well-intentioned proponents have not been able to back up what they feel to be the truth with empirical research.

It is partially to this point that this research project speaks. One of the educational purposes of a two-year institution of higher education is to provide the technical training that would be required of a student who wishes to assume the responsibilities of a technical job. Another such purpose is to provide the first two years of course work for those students who want to transfer to a baccalaureate program. If cooperative education is indeed the most

effective means by which to make these educational purposes more relevant, as was stated, then platitudes as to the benefits of the cooperative plan will not suffice. Rather, it is time for the cooperative education community, especially in two-year institutions, to ground their statements concerning the student benefits of this program in the bedrock of empirical research. This is especially true if "cooperative education is strategic to the fulfillment of the community thrust of the community college."[2]

One of the statements often made, but rarely empirically supported, deals with the ways in which participation in a cooperative education program enhances a student's "career development". Specifically, cooperative education has been propounded as a vehicle by which students are allowed to ". . . put into practice the knowledge and skills learned in school", explore their area of career choice, and get a head start in gaining the professional work experiences necessary to advance into a full-time, permanent position upon graduation.[3] Indeed, this career development value is seen as the primary objective for cooperative education programs.[4] Unfortunately, this assumption, so central as it is to cooperative education, lacks empirical foundation.

Thus, we come to the point at which these two threads can be woven into a statement of the problems being addressed by this study:

1. Does participation in a cooperative education program enhance a student's career development?

2. Can these conclusions be empirically supported?
3. What are the perceptions of cooperative education graduates of Northern Virginia Community College as to the effectiveness of the cooperative education program on the Annandale Campus?

II. Literature Review

Cooperative education literature is replete with reports that have outlined the career development values of this educational plan. Although a few of these reports have been based on research methodology, the vast majority were actually extended anecdotes based on positive personal experience.[5]

Using an empirical approach, Coleman,[6] Mosbacker,[7] and L. F. Smith[8] explored generally the positive effect of cooperative education on the career development of students served. Wilson and Lyons[9] further supported the claims of career development value in their in-depth evaluation of cooperative education over the two year period from 1958 to 1960.

In all of this work, however, the researchers looked at the cooperative education student who was involved in the program at the time of the research. Consequently, the conclusions confirming the career development benefits of cooperative education can be generalized only to other currently participating student populations and not, as it has been maintained, beyond graduation. It is central to the conduct of this study, however, that in order for the

conclusion to be drawn that cooperative education has career development value for the student, then graduates of the college who have been through the program must be examined so that long-term effects can be documented. In this way, cooperative education "puts its money where its mouth is", by being able to support its claims with data showing enhanced student career development while the student is participating as well as after graduation.

Only three instances were uncovered in which the researcher made an attempt, as this researcher will, to survey graduate cooperative education students, compare them to non-cooperative education graduates and draw conclusions as to any differences in the students' career development. One of these was a 1970 doctoral dissertation by William R. Yensco of the University of Michigan.[10] In this study, Yensco surveyed 277 graduates consisting of 143 co-ops and 134 non-co-op graduates. He asked them pointed questions to measure the effects of their career development in terms of job satisfaction but did not delve into the time necessary to obtain the student's first job after graduation, starting salary, promotions, the time necessary to get promotions, or relationship of the first job to curriculum, all factors identified by Brown[11] as indicators of career development. It was one of Yensco's conclusions that cooperative education students were more satisfied with their first job after graduation than were non-cooperative education graduates.

Brown[12] drew conclusions similar to those of Yensco but based these conclusions on a broader range of factors. She identified the length of time necessary to obtain the first full-time job after graduation, the relationship of this job to the student's major, job satisfaction, the salary range at beginning of job and increase in earnings, any promotions or increases in responsibility and the time required to get this promotion or change as factors that could be said to be evidence of the career development of a student. Generally, Brown also concluded that cooperative education graduates experience enhanced career development based on the above-stated factors. Her study, however, defined a cooperative education graduate as any student holding any job who participated in a co-op program at an institution requiring cooperative education for graduation. Because of this overly broad definition, the study suffers by allowing an uncontrollable amount of extraneous intervening variables to impinge upon its reliability.

The final research study in which cooperative graduates and non-cooperative graduates' career development was compared was the National Assessment of Cooperative Education.[13] This project, mandated by Congress and nonducted by Applied Management Services, Inc. under an HEW grant, extensively surveyed students, faculty, and employers to assess the impact of the Cooperative Education concept and make recommendations as to how its impact could be broadened. Among other areas investigated, the study delved

into career development as a benefit of cooperative education and attempted to arrive at conclusions concerning this relationship. The data revealed that former Co-op students progress more quickly on the job, tend to find jobs related to their major area when they were at college and are more likely to progress to more difficult work responsibilities. Furthermore, satisfaction with the student's current job was found to be greater for cooperative graduates as opposed to those who did not participate.[14] The researchers in this assessment, however, did not examine graduates' salaries, promotions and the time needed to get them or the time required to obtain the first full-time job after graduation. Significantly, the assessment based its findings on the jobs the students currently held rather than the graduates' first full-time position after graduation. By allowing four years to pass between the date of the student's graduation and the point at which this study undertook to empirically investigate his job, the researchers increase the possibility that factors other than cooperative education may be responsible for enhanced career development.

Thus, we can see that although career development has been identified as the central objective for cooperative education programs, little research has been conducted to document this perceived value. Those empirical efforts that have been made have suffered from a failure to look at a broad enough range of supporting factors, too general

a definition of what constitutes a cooperative education student or an inordinate time lapse between the student's graduation and the examination of his position. It is obvious that any research which would serve to clarify the relationship between participation in cooperative education and career development would be a much needed contribution.

III. Hypothesis

The hypothesis in this study is:

> Graduates who participated in the cooperative education program while students are more likely to have experienced career development than are those graduates who did not participate in the cooperative education program.

IV. Definition of Terms and Variables

The first task in defining the terms for the purpose of testing this hypothesis is to differentiate operationally between those graduates who did participate in the cooperative education program and those students who did not. In this respect, a cooperative education graduate will be considered a student who was placed in a position and enrolled in any 297 (Cooperative Education) numbered course in the years 1974, 1975, and 1976. This definition has been arrived at for two reasons. First, it allows for enough time to have elapsed after graduation for a student's career development to have manifested itself in measurable terms to be defined later. Secondly, it provides for part of the sample population to be made up of students who graduated two, three and four years ago respectively. This

allows for measurement of the effects of cooperative education over time while controlling for an unacceptable number of intervening variables which might invalidate the results should the population not be recent enough. As can be seen, this operational definition attempts to solve the problems experienced by other studies when choosing their subjects by requiring that these co-op graduates be placed and enrolled in the cooperative course. Conversely, non-cooperative education graduates can be defined as those 1974, 1975, and 1976 students who did not enroll in any curriculum's 297 course.

The second definition which is incumbent upon the researcher to make relates to career development and what factors will be considered to be indicative of this benefit.

In this regard, this study will rely upon the research work of Sylvia J. Brown of the Cooperative Education Research Center at Northeastern University in Boston. In her paper presented at the Thirteenth International Conference on Cooperative Education in April, 1977, as well as in subsequent conversations with her, she identified the following factors as having been documented as evidence of career development.[15]

a. the length of time necessary for the student to obtain his/her first full-time job after graduation.

b. the relationship of this job to the student's major program area.

c. the degree of student satisfaction with this job.

d. increases in responsibilities and/or promotions obtained by the graduate either in the first full-time job after graduation or in subsequent employment.

e. the amount of time required to obtain this promotion or change.

f. the salary range in the graduate's first full-time job after graduation.

g. any merit increases in earnings of the graduates.

h. whether or not a student had to relocate to get the first full-time job after graduation.

i. whether or not the graduate attempted any further education.

j. the extent of any further education.

Because these factors provide for a broad basis upon which to make any conclusions regarding the student's career development, this definition has been chosen as that one which will be operational for the purposes of this research.

I. Subjects

In this study, it was necessary to make provisions for the selection of two groups of subjects: (a) those students who participated in cooperative education and graduated and (b) those students who graduated without having participated in cooperative education. Only after having properly selected these populations could the researcher proceed with his investigation.

In order to select the students, a computer printout was obtained from the College's Office of Institutional Research. This list named all graduates for the years 1974, 1975 and 1976 with their social security numbers, addresses and the year in which they graduated. Graduate printout lists were requested only for those curricula in which cooperative education was offered on the Annandale Campus for the years mentioned. Using the Annandale Campus' Cooperative Education class rolls and records, those students who had both graduated and participated in cooperative education were isolated. Furthermore, students who did not participate in cooperative education were selected using a randomized formula which produced an equal number of cooperative and non-cooperative graduates in each curriculum area.

This method of choosing the research populations was decided upon for a variety of reasons. First, by selecting all of the co-op graduate population, the best

sample that could possibly be attained was achieved. Secondly, by randomizing the selection of non-co-op graduates, many impinging variables are controlled for, such as intelligence, financial status and employment assistance that a student might have received other than through the benefits of enhanced career development. Finally, by providing for equal graduate representation of each curricular area for cooperative and non-cooperative students, differences in work experiences from program to program are controlled and the generalizability of the research results are greatened.

II. Design

As has been mentioned, this study attempts to determine the nature of the relationship between career development and a student's participation in cooperative education through comparing cooperative graduates and non-cooperative graduates.

Essentially, therefore, this research has endeavored to collect, analyze and compare data on graduates where the empirical treatment has already taken place. Through the administration of a researcher designed questionnaire, the dependent variable of career development was measured. This post-test-only control group design may be diagrammatically expressed as follows:

	X	O_1
R		O_2

The R stands for the randomized selection of the graduate non-cooperative population, while the X represents the treatment, in this case participation in cooperative education. O_1 and O_2 denote the observation or amount of career development for cooperative graduates and non-cooperative graduates respectively. Simply put, this design uses two groups, one of which experiences the treatment, while the other does not.

This design is a very useful research design for the interrelationship of its basic components control for two of the most common invalidating factors, history and maturation. Furthermore, controls for selection and mortality result from the randomization of the population selections. Finally, because no pretest is administered, the threats of testing effects and extraneous interactions between testing and treatment are lessened.[16]

Finally, there is the task of defining the variables involved. In this study, the treatment that is being manipulated is participation in the cooperative education program, making this the independent variable. Furthermore, the consequent result or outcome is the extent of the student's career development which is the dependent variable for the purpose of this research project.

III. Analyses

The Chi-Square Test will be used to test the hypothesis in this investigation. This test has been selected for use because the two variables involved are nominal.

Additionally, the samples are considered to be independent. A contingency table for such a statistical analysis would be expressed as follows:

	Cooperative Graduates	Non-Cooperative Graduates
Students with enhanced career development	A	B
Students without enhanced career development	C	D

This table would represent the frequency that instances of a case that satisfied any variable involved together appeared. Through the computation of the marginals representing frequencies, the researcher could then compare "obtained frequencies to expected frequencies . . . which indicates the probability that they are different."[17] The formula used for the computation of the Chi-Square is as follows:

$$\chi^2 = \sum \frac{(o-e)^2}{e}$$

where o is the obtained frequency and e is the expected frequency. The null hypothesis (i.e., no relationship exists between participation in cooperative education and career development of graduates) will be accepted or rejected at the .05 level of significance.

IV. Limitations

Any research study has limitations or weaknesses

that the researcher attempts to minimize. The design of this study has limitations concerning the operational definition of career development as well as the selection of the research population.

With regard to the definition of career development, three questions arise. First, why does the study examine only the first full-time job after graduation? It is possible that a student's part-time position or volunteer work experiences might also reveal some information on that student's career development. Secondly, can cooperative education definitely be isolated as the causative factor behind a student's career development that this study is examining? Certainly many experiences operate to influence career development other than cooperative education. Finally, can any definition of career development be comprehensive enough? Because this educational benefit is so complex and is made up of some intangible components, there is some question as to whether or not it can even be measured.

The selection of the research population also imposes some limitations on this research attempt. The results can be generalized only to other two-year institutions, although certainly the findings would provide strong indications of the extent of career development benefit to a baccalaureate graduate. Furthermore, because many students from a two-year institution may be going on for further education, the career development that has taken place might not be evidenced as yet in the graduates'

employment history.

The nature of this study, however, serves to minimize the limitations which such criticism might impose on its findings. This is the case, primarily, because no claims can be made by any researcher as to a causal relationship in a correlational project of this type. Rather, the purpose is to point out any differences in career development between cooperative education graduates and non-cooperative graduates and the level of significance of these differences. Secondly, because of the randomization of the population selection process, it can be empirically assumed that factors other than participation in cooperative education are controlled for.[18]

ANALYSIS OF RESULTS

I. Findings

In order to place the results of this study into their proper context, it is important to examine in some detail the perceptions of cooperative education graduates on the Annandale Campus as to the effectiveness of the program.

The information received indicates rather conclusively that graduates of the program rate it highly. Charts I through IX, located in Appendix A, speak for themselves in this regard.

Of particular interest, of course, must be the 87.8% of the students who felt that their cooperative experience allowed them the opportunity to put their classroom learning into practice. When coupled with the number of students who found their cooperative position to be related to their major (96.6%), those who felt they were afforded new learning opportunities (88.8%) and general satisfaction with the co-op position (96.6%), it is apparent that the program is well received by those students who participated in it.

With regard to the relationship between participation in cooperative education and the career development of the student, the study's findings will be broken down into 7 parts corresponding to Brown's seven indicators of career development. To recapitulate, they are:

1. the time required for a graduate to obtain his first full-time job after graduation.

2. the relationship of the job obtained to the graduate's major area of study while in college.
3. the satisfaction with this position.
4. the starting salary range in this position.
5. any increases in earnings that might have taken place.
6. any promotions or increases in responsibility either on the first full-time job after graduation, or in subsequent ones within the time frame being examined.
7. the time required to get these promotions or changes.

The following paragraphs expand on each of these indicators.

Cross tabulations conducted which attempted to draw a relationship between participation in cooperative education and the length of time required to obtain the first full-time job after graduation reveal that cooperative graduates take less time. Of the cooperative graduates, 90.9% took two to three months or less to obtain this position. Indeed, of the students who required one month or less to get their job, 63.0% of them had participated in and graduated from a cooperative program. It appears, furthermore, that Business division cooperative education students tend to place themselves quickest in a position, as 74.1% of the students taking one month or less graduated from this division. The Public Service and Engineering

Technology divisions trail with 11.1% and 14.8% respectively of their students gaining employment in one month or less.

The cumulative grade point average was an intervening variable of preliminary concern to the researcher because of its reflection of the intelligence of the student. It appeared, however, to have little relationship with the time required to obtain the position in question. Only 31.6% of the students who were identified as graduating with a G.P.A. in the 3.5 to 4.0 range were placed in one month or less, while 54.2% of the graduates in the 2.5 to 2.9 range achieved placement. It was not determined how many students from each of these categories might have transferred directly to a four year institution. From information obtained when students were asked their initial reason for attending Northern Virginia Community College, there was no difference detected, however, in this time factor between those students who had baccalaureate aspirations versus those students who intended to obtain a two year degree only.

A higher percentage of cooperative students were found to have a full-time position related to his or her major area of study after graduation. Of these graduates, 80.3% characterized this position as being closely related which represented 61% of all students who so described their jobs. With regard to non-cooperative graduates, it can be said that of those who felt their jobs were closely related to their major, 39% were non-participants. It can

be further said that 66.7% of the students depicting their first full-time job after graduation as being totally unrelated to their major had not participated in cooperative education.

Again, the graduates' G.P.A. had little relationship to the closeness of that person's job to his major. Further, all of the instructional divisions had about the same percentage of graduates who obtained a closely related position; 55% had it as a goal to earn an Associate's degree and stop their education at that point.

In the area of job satisfaction, cooperative education graduates again were found to be more likely to have experienced this, although by not as large a margin as in the previous indicators. Of the graduates fully satisfied with their positions, 57.4% had participated in cooperative education and 42.6% had not. On the other end of the range, 15.8% of the non-cooperative students were either somewhat or totally dissatisfied with their first positions while only 7.7% of the co-ops were in this category.

It is interesting to relate these findings to a breakdown of job satisfaction by division. Whereas the Business and Engineering divisions had 50% and 46.7% respectively of their students fully satisfied with their position, the Public Services division had 50% of its graduates only somewhat satisfied, and 20% dissatisfied in some way. It has been the experience of cooperative education coordinators that many of the students in this

division already have positions that they are unwilling to give up and, therefore, are not usually in a position to become involved in the program. Although this is an interesting observation to note, of course, no causal relationship can be posited here.

In further delving into the job satisfaction indicator of career development, it can be seen that students who earned a higher grade point average registered greater satisfaction with their positions. Again, students working toward an Associate's degree as an end in itself evidenced increased satisfaction as they constituted 57.4% of those graduates found to be in the fully satisfied column. Finally, evidence of a relationship between the length of time a student participated in the cooperative program and his or her satisfaction with their first full-time job after graduation was seen in the figures that 72.7% of the students who participated in the program four quarters or more indicated full satisfaction with the position. This can be compared to 35.1% of the first quarter students, 54.5% of the second quarter students and 38.9% of the third quarter students.

In conversations with Sylvia Brown, she noted that salary was one of the most concrete indications of career development.[19] As could have been anticipated, most of the co-op and non-co-op graduates fell into the $7,501 to $9,999 range. In the higher ranges of the beginning salaries, however, there are more cooperative graduates and their percentage representation increases as the salary

goes up. Of those students who fell in the $10,000 to $12,500 and $12,501 to $15,000 ranges, 52.4% and 58.3% respectively were cooperative education graduates. Further, all of the graduates whose starting salary was over $15,000 had participated in cooperative education.

Engineering division students earned more money initially than did the students in the other two divisions in which the cooperative program was offered. Almost one-half, 46.7%, of the Engineering graduates began their first job earning over $10,000. This can be compared to 27.1% of the Business graduates and 33.4% of the Public Service graduates. Furthermore, students who attended the college on a full-time basis, as well as those with G.P.A.'s of 3.4 and above, were found more likely to have a starting salary in the upper ranges. Associate degree students were not found to be able to command as high a starting salary as were students who had gone on to earn bachelor's degrees as 42.9% of the latter began at a salary of $10,000 or above. Lastly, there was no evidence to indicate that longer participation in the cooperative program was related to a higher starting salary.

The rate at which a graduate's salary increases is also a prime indicator of career development. In this respect, only 6.1% of the co-op graduates received salary increases amounting to less than $500 per year as compared to 15.6% of the non-co-ops. For the most part, however, salary increases for both types of graduates fell in the $1,001 to $2,500 range.

When a comparison of salary increase is made by division, the Business division regains its top position. Only 5.3% of the graduates in this division received increases of less than $500 per year, while 18.8% of the Public Service graduates and 33.3% of the Engineering graduates did. Indeed, of the students who received increases of from $2,501 to $5,000, 67.6% were graduates of a Business division program. While grade point average seemed to have little relationship to increased earnings, it must be noted that students seeking only a two-year degree constituted 56.8% of those students in the highest salary increase range, from $2,501 to $5,000 as compared to 2_ % of the baccalaureate students.

The last two career development indices that were investigated involved the graduates' promotions and/or increases in employment responsibilities and the amount of time required to get these promotions and/or increases.

In the case of the first such indicator, it was found that cooperative program graduates tend to get about the same promotions and increases in job responsibilities as do non-co-ops, but tend to change employers to achieve this. Of the non-co-ops, 57.4% received a promotion or increased responsibilities either with the same employer and position, a new position with the same employer, or by changing employers with a promotion. On the other hand, 57.2% of the cooperative students achieved this. Of the students who changed jobs to get their promotions, however, 68.8% were cooperative education graduates. The Business

division graduates (66.6% of those with a promotion or new responsibilities), the two-year degree seeking student (59.5%), and the part-time student (77.3%), were all found more likely to gain a promotion and/or new responsibilities either with their first employer or by changing.

Finally, with regard to the time found necessary to obtain the promotion or new responsibilities discussed above, it can be said that cooperative education graduates are awarded these in a shorter period of time. Of those students who indicated that it took less than six months on their first job to achieve this, 62% had graduated after participating in co-op as opposed to 38% who had not. No relationship could be detected between whether a student attended full-time, length of participation in cooperative education, and grade point average and the time required to be given a job promotion and/or new responsibilities. It should be noted that Business division graduates (68.6%) seemed more likely to achieve this in six months or less. The same was true of two-year degree students who constituted 54.0% of this category's population.

II. Conclusions

Some of the most interesting conclusions that could be made on the basis of the data collected, have to do with areas peripheral to the central hypothesis.

For example, the student's cummulative grade point average, widely seen by employers as an indicator of a prospective employee's success, does not seem reliable.

Indeed, if anything, students with lower grade point averages seemed to do better in some areas. Of the students who obtained their first full-time job in one month or less after graduation, 44.4% had G.P.A.'s of 2.5 to 2.9, whereas 31.6% had averages above 3.5. A higher average also did not correlate highly with the relationship of the job to the student's major increases in earnings, promotions or the time required to obtain the promotions. The data does seem to indicate that students who earned a higher G.P.A. were more fully satisfied with the position and that their starting salaries were slightly higher. Generally, however, a higher grade point average at graduation did not seem to warrant the influence it has on employers when making a hiring decision.

The second conclusion which made itself evident even though it was not meant to be central to the study, relates to graduates from the Business division. These graduates almost uniformly could be singled out as having the most evidence of career development. The two indicators in which they did not, namely beginning salary range and the relationship of the first full-time job to the student's major, found them in a close second. Furthermore, even though beginning salaries for Business division graduates may be lower, they more than make it up by increasing their earnings at a more rapid rate. Over 67% of the students experiencing a salary increase of from $2,501 to $5,000 had graduated from this division and of the students who received a promotion within the first six months of employment,

68.6% had taken courses in the Business division. This latter statistic was found to be significant at the $p < .04$ level.

The last so called "peripheral finding" may not be so peripheral after all. Specifically, the data indicated a definite pattern in which students who came to the college intending to pursue and graduate from a two-year program and attempt no further education seem to evidence greater career development than do students who wish to enter the college and eventually pursue a bachelor's degree. In every career development indicator area, except for initial salary range, two-year students far surpassed four-year degree aspirants. Even in the area of salary, two-year graduates constituted 56.8% of the graduates whose earnings increased from $2,501 to $5,000.

Finally, let us attempt to see what conclusions the data will allow us to reach concerning career development and participation in a cooperative education program. As is obvious from the information in the "Findings" section, cooperative education graduates surpass non-cooperative students in six of the seven indicator categories. In the category of promotions or increases in job responsibility, the co-ops and non-co-ops were virtually even in their ability to obtain these even though co-ops were promoted much quicker.

At this point, we need to be reminded of the original purpose of this study. Besides endeavoring to collect data in relation to the hypothesis in question, this was to be

an attempt to ". . . ground . . . statements concerning the student benefits of this program in the bedrock of empirical research."

From a strictly statistical viewpoint, then not all of the results of this study are within the narrow range required to establish unquestionable significance. The results of this initial empirical attempt to examine the main educational benefit of the cooperative education concept cannot be discounted, however. This is the case because of the breadth of the data gathered rather than depth of its statistical significance. In every career development indicator area identified by Brown, cooperative education students showed a high level of advancement. In the area in which co-op and non-co-op graduates showed about the same degree of career advancement, namely the number of promotions and/or awarding of increased employment responsibilities, the data indicated that co-op graduates achieve these goals at a faster rate. To further support this idea that the breadth of knowledge supports the career development benefits of cooperative education, let us examine the comparative statistics as indicated in Table I.

This table, which compares cooperative and non-cooperative graduates in the highest categories of each of the seven indicator areas, demonstrates the breadth of the support the data gives to the original career development hypothesis. Although not within statistically significant levels, this research has done much to validate the career

development benefits of cooperative education as well as to provide a springboard for research efforts in specific areas of this subject.

TABLE I

Comparative Statistics of Cooperative Graduates
in 7 Indicator Areas of Career Development

Career Development Indicator	Co-op	Non-Co-op
1. Time required to obtain first full-time job after graduation. (% students who took one month or less)	63.0	37.0
2. Relationship of this job to the student's major while attending college. (% students who found job that was closely related)	61.0	39.0
3. Satisfaction with their first full-time job after graduation (% students fully satisfied)	57.4	42.6
4. Salary range in first full-time job after graduation. (% students earning over $10,000 per year initially)	33.9	26.8
5. Increase in earnings after beginning position (% students receiving increases in the $2,501 to $5,000 range)	54.1	45.9
6. Promotions and/or increase in employment responsibility with same employer.		
a. % changed job with new responsibilities	57.1	42.9
b. % kept job with change or promotion	50.0	50.0
c. % changed job with promotion	68.8	31.3
7. Time required to obtain new responsibilities or promotion (% less than six months)	62.0	38.0

APPENDIX A

CHART I

Relationship of Cooperative Education Position to Major

	Absolute Freq	Relative Freq (PCT)	Adjusted Freq (PCT)	Cum Freq (PCT)
Closely Related	76	83.5	85.4	85.4
Moderately Related	10	11.0	11.2	96.6
Unrelated	3	3.3	3.4	100.0
Missing Cases	2	2.2	Missing	100.0
TOTAL	91	100.0	100.0	

CHART II

Opportunities to Put Classroom Learning into Practice

	Absolute Freq	Relative Freq (PCT)	Adjusted Freq (PCT)	Cum Freq (PCT)
Many Opportunities	43	47.3	47.8	47.8
Some Opportunities	36	39.6	40.0	87.8
Few Opportunities	11	12.1	12.2	100.0
Missing Cases	1	1.1	Missing	100.0
TOTAL	91	100.0	100.0	

CHART III

New Learning Experiences Available on Job

	Absolute Freq	Relative Freq (PCT)	Adjusted Freq (PCT)	Cum Freq (PCT)
Many Opportunities	37	40.7	41.6	41.6
Some Opportunities	42	46.2	47.2	88.8
Few Opportunities	10	11.0	11.2	100.0
Missing Cases	2	2.2	Missing	100.0
TOTAL	91	100.0	100.0	

CHART IV

Help Provided in Obtaining Permanent Position

	Absolute Freq	Relative Freq (PCT)	Adjusted Freq (PCT)	Cum Freq (PCT)
Much Help	25	27.5	29.8	29.8
Some Help	28	30.8	33.3	63.1
Little Help	31	34.1	36.9	100.0
Missing Cases	7	7.7	Missing	100.0
TOTAL	91	100.0	100.0	

CHART V

Full-Time Potential of
Cooperative Education Position

	Absolute Freq	Relative Freq (PCT)	Adjusted Freq (PCT)	Cum Freq (PCT)
Great Deal	28	30.8	32.6	32.6
Some Potential	28	30.8	32.6	65.1
Little Potential	30	33.0	34.9	100.0
Missing Cases	5	5.5	Missing	100.0
TOTAL	91	100.0	100.0	

CHART VI

Satisfaction with Cooperative Education

	Absolute Freq	Relative Freq (PCT)	Adjusted Freq (PCT)	Cum Freq (PCT)
Highly Satisfied	25	27.5	28.1	28.1
Mostly Satisfied	33	36.3	37.1	65.2
Satisfied	20	22.0	22.5	87.6
Less than Satisfied	10	11.0	11.2	98.9
Unsatisfied	1	1.1	1.1	100.0
Missing Cases	2	2.2	Missing	100.0
TOTAL	91	100.0	100.0	

CHART VII

Satisfaction with Cooperative Education Coordinator

	Absolute Freq	Relative Freq (PCT)	Adjusted Freq (PCT)	Cum Freq (PCT)
Very Helpful	42	46.2	48.3	48.3
Helpful	34	37.4	39.1	87.4
Less than Helpful	11	12.1	12.6	100.0
Missing Cases	4	4.4	Missing	100.0
TOTAL	91	100.0	100.0	

CHART VIII

Satisfaction with Cooperative Education Position

	Absolute Freq	Relative Freq (PCT)	Adjusted Freq (PCT)	Cum Freq (PCT)
Highly Satisfied	27	29.7	30.7	30.7
Mostly Satisfied	32	35.2	36.4	67.0
Satisfied	26	28.6	29.5	96.6
Less than Satisfied	3	3.3	3.4	100.0
Missing Cases	3	3.3	Missing	100.0
TOTAL	91	100.0	100.0	

CHART IX

Satisfaction with Cooperative Education Assignments

	Absolute Freq	Relative Freq (PCT)	Adjusted Freq (PCT)	Cum Freq (PCT)
Highly Satisfied	18	19.8	20.5	20.5
Mostly Satisfied	23	25.3	26.1	46.6
Satisfied	38	41.8	43.2	89.8
Less than Satisfied	7	7.7	8.0	97.7
Unsatisfied	2	2.2	2.3	100.0
Missing Cases	3	3.3	Missing	100.0
TOTAL	91	100.0	100.0	

APPENDIX B

NORTHERN VIRGINIA COMMUNITY COLLEGE

February, 1978

Dear 1974, 1975, and 1976 Graduate:

The Office of Cooperative Education on the Annandale Campus is conducting a survey of 1974, 1975, and 1976 graduates of Northern Virginia Community College. We have selected your name at random, and request your cooperation in completing our survey as soon as possible.

Your answers to these questions will be used in some very important research being conducted concerning the Cooperative Education program at the College and its possible effect on those students who participated. Both students who participated in the program, and those who did not, are asked to complete this form.

It is essential that in responding, you answer all questions as completely and accurately as possible. All participants and answers will be kept strictly confidential.

A pre-addressed, stamped envelope has been enclosed for your convenience in returning the completed questionnaire. Your assistance and cooperation in returning this form to us by March 1, 1978 will be greatly appreciated.

Should you be interested in receiving the results of this research study, please indicate this by printing your name and address after the last question.

Sincerely,

Michael A. Hamlin

MICHAEL A. HAMLIN
Assistant Coordinator
Cooperative Education

ANNANDALE CAMPUS, 8333 LITTLE RIVER TURNPIKE, ANNANDALE, VIRGINIA 22003

APPENDIX C

NORTHERN VIRGINIA COMMUNITY COLLEGE
OFFICE OF COOPERATIVE EDUCATION
ANNANDALE CAMPUS

SELECTED GRADUATE QUESTIONNAIRE

Instructions: Please write the letter or written answer as appropriate to each question in the space provided to the left of each number.

PART I

_____ 1. What is the appropriate age range for you?

a. 18-19 years old
b. 20-22 years old
c. 23-25 years old
d. 25-30 years old
e. 30 years old or over

_____ 2. In what year and quarter did you first enroll as a student on some Campus of Northern Virginia Community College? (Example: Spring, 1974; if you began in a Winter Quarter, the year is that one in which the Quarter ended.)

_____ 3. In what year did you graduate from the College? (This is not necessarily when you completed the degree requirements, but instead, the following June when the College officially awarded your degree.)

a. 1974
b. 1975
c. 1976

_____ 4. In what curriculum area did you receive your degree? (Be very specific. Do not, for example, just list Engineering if you were in Broadcast Engineering or Mechanical Engineering.)

_____ 5. During your studies here, were you a

a. Full-time student
b. Part-time student
c. Both at one time or another

_____ 6. What was your cummulative grade point average when you graduated?

a. 3.5 to 4.0
b. 3.0 to 3.4
c. 2.5 to 2.9
d. 2.0 to 2.4

_____ 7. What was your primary reason for attending NVCC?

a. To upgrade my present job skills
b. To take the first two years of a bachelor's degree program and transfer to a 4-year school
c. Expand my breadth of knowledge
d. To earn a degree in a two-year technical or professional degree program
e. Other, please explain_____
_____

_____ 8. What level of education had you attained prior to attending NVCC?

a. High school diploma or equivalent
b. Had taken some college course work
c. Had already completed the requirements for a two-year degree
d. Had already completed the requirements for a bachelor's degree
e. Had completed some graduate level work
f. Other, please explain_____
_____

_____ 9. At any time while attending Northern Virginia Community College did you enroll in and complete at least one quarter of Cooperative Education?

a. Yes
b. No

_____ 10. If you answered "yes" to Question 9 above, which response best describes the length of your participation in the Cooperative Education program?

a. 1 quarter
b. 2 quarters
c. 3 quarters
d. 4 or more quarters

IF YOU ANSWERED NO TO QUESTION 9 ABOVE, SKIP OVER PART II. PLEASE CONTINUE TO ANSWER THE QUESTIONS IN PARTS III AND IV AS DIRECTED PREVIOUSLY.

PART II

_____ 11. With regard to your Cooperative Education position, was it

a. Closely related to your major area of study here at the College
b. Moderately related to your major area of study at the College
c. Not very related to your major area of study here at the College

_____ 12. With regard to your Cooperative Education position, did it

a. Provide many opportunities to put your classroom learning into practice
b. Provide some opportunities to put your classroom learning into practice
c. Provide few opportunities to put your classroom learning into practice

_____ 13. With regard to your Cooperative Education position, did it

a. Provide many opportunities for new learning experiences
b. Provide some opportunities for new learning experiences
c. Provide few opportunities for new learning experiences

_____ 14. With regard to your Cooperative Education position, and/or the work experience gained from it, did it

a. Provide a great deal of help in securing permanent employment in your chosen career
b. Provide some help in securing permanent employment in your chosen career
c. Provide little help in securing permanent employment in your chosen career

_____ 15. With regard to your Cooperative Education position, did it

a. Provide a great deal of potential for obtaining full-time employment and/or career advancement with your Cooperative Education employer
b. Provide some potential for obtaining full-time employment and/or career advancement with your Cooperative Education employer
c. Provide little potential for obtaining full-time employment and/or career advancement with your Cooperative Education employer

_____ 16. If you were not provided an opportunity for full-time employment and/or career advancement by your Cooperative Education employer, was it because

a. The employer was too small
b. The employer had no positions available when you were looking
c. You opted to continue your education instead
d. You were offered a job with your Cooperative Education employer but did not accept it
e. Other, please explain_____
_____

_____ 17. With regard to the Cooperative Education program, in general, did you find it to be

a. Highly satisfactory
b. Mostly satisfactory
c. Satisfactory
d. Less than satisfactory
e. Totally unsatisfactory

_____ 18. With regard to the Coordinator(s) with whom you dealt in the Cooperative Education Office, did you find her/him to be

a. Very helpful
b. Helpful
c. Less than helpful

_____ 19. With regard to your Cooperative Education position, did you find it to be

a. Highly satisfactory
b. Mostly satisfactory
c. Satisfactory
d. Less than satisfactory
e. Totally unsatisfactory

_____ 20. With regard to your Cooperative Education assignments, did you find them to be

a. Highly satisfactory
b. Mostly satisfactory
c. Satisfactory
d. Less than satisfactory
e. Totally unsatisfactory

_____ 21. How did you first hear about Cooperative Education?

a. In General Orientation (GENL 100)
b. From an instructor
c. From a friend or classmate at NVCC
d. From a member of the Cooperative Education staff
e. From a bulletin board, or Co-op literature
f. From a counselor in the Counseling Center
g. Other, please explain_____
_____

BOTH STUDENTS WHO HAVE PARTICIPATED IN COOPERATIVE EDUCATION, AND THOSE WHO HAVE NOT, SHOULD ANSWER THE QUESTIONS IN PART III.

PART III

_____ 22. What other of the College's job finding services, if any, did you use?

a. The Placement Office
b. Referral by a faculty member
c. I did not use any of them
d. Other, please explain _____

_____

_____ 23. If you used the services of the Placement Office, did you find them to be

a. Highly satisfactory
b. Mostly satisfactory
c. Satisfactory
d. Less than satisfactory
e. Totally unsatisfactory

_____ 24. With respect to your present job, did you have it before you became a student at NVCC?

a. Yes
b. No

_____ 25. If you answered yes to Question 24 above, how long did you have the job before you became a student here?

a. Six months or less
b. Six months to one year
c. One to two years
d. More than two years

_____ 26. With respect to your professional field, how long were you involved in it before you became a student here at the College?

a. None or less than six months
b. Six months to one year
c. One to two years
d. More than two years

_____ 27. How did you locate your first full-time job after graduation from NVCC?

a. I was already employed in a job when I began attending school and did not need placement
b. Through my position which originally began as a Cooperative Education position

(continued)

c. Through the Placement Office
d. Through the newspaper
e. Through an employment agency, either public or private
f. Other, please explain _____
_____

_____28. With respect to your first full-time job after graduation, how long after graduation did it take you to get the position?

a. One month or less
b. Two to three months
c. Four to five months
d. Six to twelve months
e. I already had the job

_____29. How closely related to you major area of study here at the College was your first full-time job after graduation?

a. Closely related
b. Somewhat related
c. Totally unrelated

_____30. Did you have to relocate to acquire your position?

a. Yes
b. No

_____31. How satisfied were you with this position?

a. Fully satisfied
b. Somewhat satisfied
c. Somewhat dissatisfied
d. Totally unsatisfied

_____32. In what range was your starting salary in this position?

a. Under $5,000
b. From $5,001 to $7,500
c. From $7,501 to $9,999
d. From $10,000 to $12,500
e. From $12,501 to $15,000
f. Over $15,000

_____33. If your yearly earnings have increased since the time of your graduation, in what range did they increase?

a. Less than $500
b. From $501 to $1,000
c. From $1,001 to $2,500
d. From $2,501 to $5,000
e. More than $5,000

_____34. Since your graduation from the College, have you

a. Stayed in the same job
b. Changed employers but maintained approximately the same responsibilities
c. Stayed with the same employer but received a promotion and/or new job responsibilities
d. Changed employers and received a promotion and/or new job responsibilities with the new employer
e. Other, please explain _____
_____

_____35. How long after graduation was it before you received a promotion and/or new responsibilities either in your present job or with a new employer?

a. Less than six months
b. Six to twelve months
c. From thirteen months to two years
d. From two to four years
e. I did not receive a promotion and/or new job responsibilities

_____36. After graduation from NVCC, did you attempt to complete the requirements for a higher degree?

a. Yes
b. No

_____37. If you answered "yes" to Question 36, how far did you get in your education?

a. I have undertaken other courses either at NVCC or another two-year college or school
b. I partially completed the requirements for a bachelor's degree
c. I fully completed and was awarded a bachelor's degree
d. I attempted some graduate level work

ONLY THOSE STUDENTS WHO DID NOT PARTICIPATE IN COOPERATIVE EDUCATION SHOULD COMPLETE PART IV.

PART IV

_____38. If you did not participate in Cooperative Education while a student at NVCC, what was the principle reason?

a. Did not know about the program
b. Did not feel a practical work experience was needed

(Continued)

c. Already was employed in the field
d. Wanted to get all course work completed without delay
e. Your curriculum did not offer Cooperative Education
f. Other, please explain _____

_____

_____ Your cooperation in completing this questionnaire has been greatly appreciated. Should you desire to obtain the results of this study, please indicate by checking here and writing your name and address below.

Name _____

Address _____

_____

FOOTNOTES

[1]Robert W. Tyler, "Values and Objectives", Handbook of Cooperative Education edited by Asa S. Knowles (San Francisco: Jossey-Bass, Inc., 1971), p. 18.

[2]Barry Heerman, Cooperative Education in Community Colleges (San Francisco: Jossey-Bass, Inc., 1973), p. 16.

[3]Tyler, 20.

[4]John A. Chase, "Research Report: Program Characteristics", Journal of Cooperative Education VIII (May, 1971), pp. 49-52.

[5]Tyler, 19.

[6]P. E. Coleman, "A New Appraisal of the Cooperative Plan", Journal of Business Education (1934), pp. 913-14.

[7]W. Mosbacker, "Women Graduates of Cooperative Work-Study Programs on the College Level", Personnel and Guidance Journal XXXV (1957), pp. 508-511.

[8]L. F. Smith, "Cooperative Work Programs", Journal of Higher Education XV (1944), pp. 207-212.

[9]J. W. Wilson and E. H. Lyons, Work-Study College Programs: Appraisal and Report of the Study of Cooperative Education (New York: Harper and Row, 1961).

[10]W. R. Yensco, "A Comparative Analysis of Engineering Graduates From Cooperative and Regular Programs: Career Status and Attainment of 1962 and 1965 Baccalaureate Graduates" (Ph.D. dissertation, University of Michigan, 1970).

[11]Sylvia J. Brown, "Cooperative Education and Career Development: A Comparative Study of Alumni", paper presented at the 13th International Conference on Cooperative Education, Philadelphia, PA, April 21, 1977.

[12]Brown.

[13]Arthur Cohen, et. al., Cooperative Education: A National Assessment, Final Report (Washington, D.C.: ERIC Clearninghouse, 1978).

[14]Cohen, 147, 148, 150, 157, 167, 168, 171, 173.

[15]Brown.

[16]Bruce W. Tuckman, Conducting Educational Research (New York: Harcourt, Brace and Jovanovich, 1972), p. 106.

[17]Tuckman, 248.

[18]Tuckman.

[19]Brown.

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